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A. CRAIG

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## APPARATUS FOR WAVING AND CURLING HAIR

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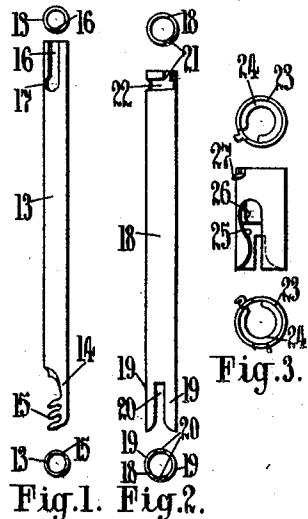


Fig.1. Fig.2.

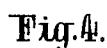


Fig. 3.

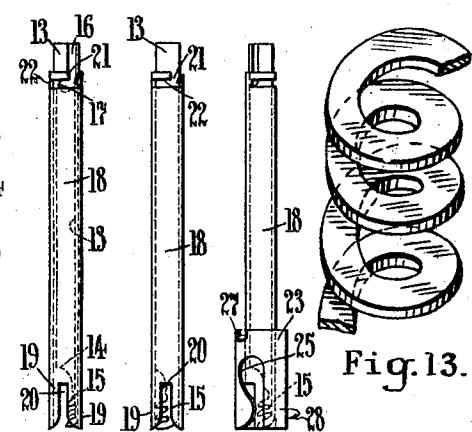


Fig.5. Fig.6. Fig.7.

Fig. 13.

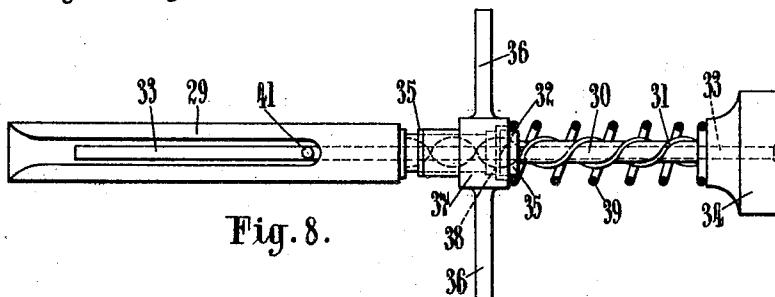


Fig. 8.

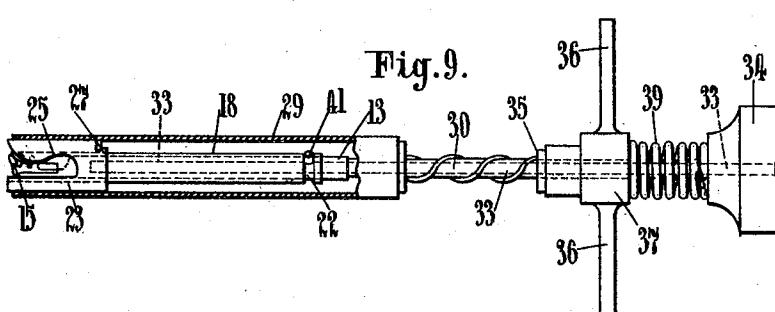


Fig. 9.

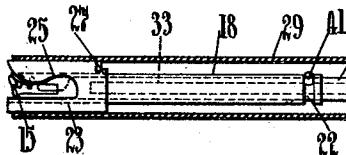


Fig. 10.

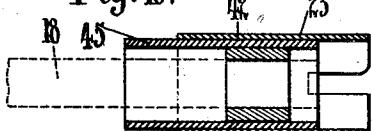
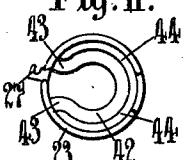


Fig. II.



A diagram of a cylindrical component with a slot. The slot is labeled with the number 14. The top and bottom edges of the cylinder are labeled with the number 18. The left side of the cylinder is labeled with the number 46.

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# UNITED STATES PATENT OFFICE

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## APPARATUS FOR WAVING AND CURLING HAIR

Application filed June 1, 1926, Serial No. 112,958, and in Great Britain June 5, 1925.

This invention relates to apparatus for waving or curling hair, and more particularly to the rods or the like upon which the strands of hair are curled before being subjected to the treatment, and has for its object to provide such devices which will be readily secured in position to the strand of hair near the scalp and by which the hair may be tightly and evenly coiled in position right up to the end of the strand.

In general a rod or the like constructed according to the invention is formed tubular and comprises an inner part adapted to project through one end and to be provided with means by which it is secured to the hair near the scalp. On the exterior the rod is provided with a rotary and sliding device preferably in the form of a sleeve adapted to rotate and slide on the rod in tight frictional contact therewith. Means are provided by which the strand of hair is engaged by this sliding member so that when the said member is rotated the strand of hair is caused to be tightly coiled or wound around the rod. The sleeve may be rotated by hand or in some cases by a handle operated and geared appliance placed over the outer end of the rod.

In order that the invention may be better understood it will now be described with reference to the accompanying drawings in which:—

Fig. 1 shews in elevation and axial end views the inner member of one form of rod made according to the invention.

Fig. 2 shews similar views of the outer member of the rod.

Fig. 3 shews similar views of one form of rotary and sliding device for mounting on the exterior of the outer member shewn in Fig. 2.

Fig. 4 shews a vertical section of the sliding device shewn in Fig. 3.

Fig. 5 shews in elevation the inner and outer members of the rod assembled and in one relative position.

Fig. 6 shews a similar view to Fig. 5 but with the parts in another relative position.

Fig. 7 shews a generally similar view to Fig. 6 but with the rotary and sliding device

mounted upon the exterior of the outer member of the rod.

Fig. 8 is a plan view of one form of handle device for turning the rotary sleeve on the rod.

Fig. 9 is a similar view to Fig. 8 but partly in section and shewing the co-operation with the rod.

Fig. 10 shews in sectional side elevation and Fig. 11 in end elevation to an enlarged scale a modified form of rotary sleeve device for mounting on the exterior of the rod.

Fig. 12 shews one end of a modified form of inner member of the rod.

Fig. 13 is a perspective of a curl such as formed by my improved apparatus.

Referring to Figs. 1 to 7, 13 is the inner member of the rod which is tubular and is provided at the lower end with a tongue like part 14 having teeth 15 at one edge to form a comb. At the upper end it is formed with a slot 16 ending in a notch 17. 18 is the outer tubular member of the rod into which the member 13 is adapted to fit; this member 18 has two tongues 19 at one end divided by slots 20 and at the other end has a notch 21 opening into a part circumferential slot 22.

The member 13 is adapted to fit into the member 18 as shewn in Fig. 5 so that when the slot 16 coincides with the notch 21 and the notch 17 with the circumferential slot 22, the comb teeth 15 come behind one of the tongues 19 leaving the slots 20 open and ready to be passed over a strand of hair near the scalp. When this has been done the members 13 and 18 are relatively rotated into the position shewn in Fig. 6 by hand or by suitable means when the teeth 15 enter between the hairs in the strand of hair and thus attach the composite rod to the strand of hair.

The rotary sliding member for fitting over the member 18 is shewn in Figs. 3 and 4, and comprises a sleeve 23 with an inner ring 24 secured therein with a portion cut away. This cut away portion comes adjacent a shaped slot 25 in the sleeve 23. One corner of the cut away ring 24 is rounded as shewn

at 26, and 27 is a tongue bent up and projecting from the sleeve 23.

The ring 24 is a tight frictional fit on the member 18 and an annular space is left between the interior surface of the sleeve 23 and the exterior surface of the member 18.

The strand of hair which is held by the teeth 15 passes out through one of the slots 20 and when the sleeve 23 is in position as shewn in Fig. 7 it passes through the shaped slot 25. By rotating the sleeve 23 in the direction of the arrow and holding the composite rod 13-18 fixed, the strand of hair is tightly coiled on the exterior of the member 18. By continued rotation of the sleeve 23 it will be appreciated that the strand of hair is coiled around the hollow rod, which is held from rotation at the scalp or outer end, and comes within the annular space between the sleeve 23 and the rod. This "packs" the hair tightly and when the annular space is filled by continued turning of the sleeve, the sleeve is automatically pushed or slid up the hollow tube by the hair coiled thereon pushing against the ring 24 until the ends of the strand come within the sleeve. In the winding on action the rounded corner 26 evens the strand as it is formed into the coils and does away with uneven tension and creeping. The hair is now tightly coiled upon the hollow rod and the loose ends gripped in position and consequently is ready for treatment by being passed into a suitable heater or otherwise.

Owing to the fact that the strand of hair is engaged within the curler, the first turn of the strand can pass completely around the curler and the second turn can overlap this. As a result no additional binding is required the self-gripping action being sufficient. The edge of the flattened strand of these preliminary turns which is nearest to the upper end of the curler comes against the end surface of the ring 24 or the like. As a consequence on continued winding the turns of the strand are flattened and spread out radially to fill the annular space, before the ring is forced to move thereby, so that the curl on the rod resembles a flat helical strip substantially rectangular in cross section the narrow dimension of which rectangle is parallel to the axis of the curler. The wave subsequently produced is of great regularity and perfect in form requiring very little if any setting.

In some cases a spring clip device may be provided to engage with the exterior of the sliding and rotary sleeve 23. This may be of such construction that a portion thereof is pressed in a springy manner into contact with one side of the slot 25 in the rotary and sliding sleeve 23, the strand of hair coming between the springily engaged surfaces. By this means the hair is kept in tension. A helical sleeve of wire forming a hair car-

rier may in some cases be attached to the strip so that the strand of hair being wound lies in this carrier. It will be realized that the spring clip and hair carrier turn and slide with the sleeve on the rod.

To effect the rotation of the sleeve 23 on the composite rod in some cases a tubular member such as shewn at Figs. 8 and 9 may be provided. The tubular member 29 is carried by a long tube 30 having a screw thread 31 and a nut 35 thereon with a clutch face 32. The combined tubes 29 and 30 are mounted around a rod 33 fixed to a handle 34. 36 is another cross handle with a sleeve 37 surrounding the nut 35 and permitting it to rotate therein. This handle 36 is formed with a clutch face 38 to cooperate with the clutch face 32 and has a limited free longitudinal movement over the nut 35. 39 is a compression spring between the handle 34 and the sleeve 37 of the handle 36. 40 is a long slot in the sleeve 29 and 41 a pin projecting from the rod 33.

In action if the handle 34 is disposed in the palm of the hand and two fingers hooked around the cross handle 36 then by pulling with these fingers (if the parts are in the position shewn in Fig. 8) the handle 36 is brought towards the handle 34. The first part of the movement engages the clutch faces 32 and 38 and on further movement the nut 35 which is thereby held from rotation, working over the screw thread 31 causes the tube 31 and consequently the tubular member 29 to be rotated. This first action compresses the spring 39 and at the end of the stroke upon relaxing the fingers the return stroke is carried out by the spring. In this direction however the tubular member 29 is not rotated as the first part of the return movement disengages the clutch faces 32 and 38 and leaves the nut 35 free to rotate on the screw 31 and within the sleeve 37.

In utilizing this handle device to turn the sleeve 23, the tubular member 29 is passed over the sleeve 23 which it just fits and the tongue 27 takes against one edge of the slot 40. The members 13 and 18 of the composite rod are in the position shewn in Fig. 5 and the rod 33 passes into the interior of the member 13. The pin 41 is brought down the slot 16 into the notch 17 and slot 22. By turning the tubular member 29 as before explained the first movement rotates the sleeve 23 and this carries the member 18 with it until the parts are brought into the position shewn in Fig. 6. Further movement turns the sleeve 23 on the member 18 and effects the coiling of the strand of hair as previously explained.

As all the hairs of a strand are not of equal length the bulk of the strand reduces towards the end. To efficiently coil this on the member 18 the annular space between this member and the interior of the

sleeve 23 should be reduced or diminished.

In the modification shewn in Figs. 10 and 11 such a diminishing device is shewn. In these figures the ring 24 is replaced by a part ring member 42 as shewn having bent out ends 43 attached to the sleeve 23 leaving a space 44 between the outside of the ring 42 and the interior of the sleeve 23. When the end of a strand is being coiled a sleeve 45, with a suitable cut away part, can be slipped through the space 44 to diminish the diameter of the annular space and therefore to allow the end of the strand to be efficiently coiled.

The modified form of inner member 18 shewn in Fig. 12 has the teeth 15 replaced by a circumferentially bent portion 46 of desired angular extent, which when the parts are in the relative position shewn in Fig. 6 comes beneath the strand of hair.

The long slot 40 is provided for the passage of the strand of hair in all positions as the sleeve 23 moves on the member 18 and in the tubular member 29.

The sleeve member 23 may in some cases be hinged longitudinally so that the annular space between itself and the rod may be varied, a co-operating ring fitting on the exterior to keep the tubular member closed. The exterior in this case may be made somewhat conical to give the required variations and diminishing effects.

One edge of the opening between the parts of the sleeve may be formed or provided with teeth through which the hair passes as the sleeve is turned on the rod.

The tubular member 29 of the handle in some cases may be formed or provided with teeth through which the hair passes as the tubular member is turned. The hair may also pass either after passing these teeth or before or without the teeth, between resilient gripping pads or the like or between one such pad and another suitable surface carried on the tubular member.

The invention is not limited to the particular constructional details described as these may be varied to suit particular cases.

What I claim and desire to secure by Letters Patent of the United States of America, is:

1. In an apparatus for waving or curling hair wherein the hair is coiled on the curler in the form of a flat helical strip, substantially rectangular in cross section with the narrow dimension of the rectangle parallel to the axis of the curler, a construction comprising in combination a composite rod upon which the hair is coiled consisting of an inner and outer tubular member, the said composite rod having means for engaging the hair near the scalp at one end, a rotary and sliding device in the form of a sleeve adapted to rotate and slide on the rod in sliding frictional contact therewith and having means

for engaging the strand of hair so that when the said device is rotated the strand of hair is flattened, spread out radially and tightly coiled or wound round the rod.

2. An apparatus for waving or curling hair as claimed in claim 1, wherein the rotary and sliding device is provided with means for giving it an automatic longitudinal movement as the hair is coiled on the composite rod.

3. An apparatus for waving or curling hair as claimed in claim 1, wherein the rotary and sliding device is formed with a cylindrical interior surface, which is spaced apart from the outer surface of the composite rod to form an annular space in which the hair is coiled on the rod and a ring to which the annular space is bounded at one end and which fits around the outer surface of the rod and against which ring the coils of hair press to move the rotary and sliding device longitudinally.

4. An apparatus for waving or curling hair as claimed in claim 1, wherein the rotary and sliding device is formed with an annular space in which the hair is coiled on the rod, the one end of the said annular space being bounded by a ring against which the coils of hair press to move the rotary and sliding device longitudinally, and in which the ring is discontinuous and formed with a rounded corner or edge for the purposes set forth.

5. An apparatus for waving or curling hair as claimed in claim 1, wherein the rotary and sliding device is formed with a cylindrical interior surface, which is spaced apart from the outer surface of the rod to form an annular space in which the hair is coiled on the rod, and in which means are provided for lessening the outer diameter of the annular space to compensate for the decreasing diameter of the coil due to the thinness of the strand of hair as the end is approached.

6. An apparatus for waving or curling hair as claimed in claim 1, in which means are provided for holding the inner member of the composite rod fixed while the outer member thereof and the rotary and sliding device carried thereby is rotated for the purposes set forth.

7. An apparatus for waving or curling hair as claimed in claim 1, in which means are provided for holding the inner member of the composite rod fixed while the outer member thereof and the rotary and sliding device carried thereby is rotated, characterized by the fact that such means comprises a primary handle device adapted to be connected to the inner member of the rod and a secondary handle device adapted to be rotated on the primary handle and connected to the rotary and sliding device on the outer member of the composite rod.

In witness whereof I affix my signature.

ALEXANDER CRAIG.